

## CLAIMS

- 1) A screw compressor (1) for compressing and separating liquid from matter (2) that passes through the screw compressor (1), which screw compressor comprises a screw (3) having an outer threading (4), the pitch of which decreases in the longitudinal direction of the screw (3), a casing (5) that encases the screw (3), which casing has an inner side (6) that faces the thread (4) on the screw (3) so that matter can be fed forward through the screw compressor (1) between the screw (3) and the inner side of the casing (5) in a direction from an inlet end (7) of the screw compressor where the pitch of the screw (3) thread (4) is greater to an outlet end (8) of the screw compressor (1) where the pitch of the screw (3) thread (4) is smaller, appliances (9) on the inner side of the casing, that are arranged to prevent matter that passes through the screw compressor from rotating along with the screw (3) but instead to pass essentially straight ahead in the longitudinal direction of the screw (3), a conduit (10) for liquid supply arranged inside the screw (3) and provided with a mouth (11) on the outside of the screw (3) so that liquid can be fed through the screw and be supplied to matter that passes through the screw compressor (1), the mouth (11) being arranged on the outer surface of the screw (3) in order thereby to rotate along with the screw (3) so that liquid that is supplied via the conduit (10) is uniformly supplied to the matter that passes the screw compressor (1), characterised in that the screw compressor (1) is arranged to press the liquid that is supplied to the matter (2) via the mouth (11) of the conduit (10), axially backwards in the longitudinal direction of the screw (3) and in direction towards the inlet end (7) of the screw compressor (1).
- 2) Screw compressor (1) according to claim 1, characterised in that the degree of compression in the screw compressor (1) is constant from the inlet end (7) to the outlet end (8).
- 3) Screw compressor (1) according to claim 1 or 2, characterised in that the mouth (11) is arranged closer to the outlet end (8) of the screw compressor (1) than to its inlet end (7), so that liquid can be supplied to the matter that passes through the screw compressor (1) when the matter already has been exposed to compression over more than half of the length of the screw compressor (1).
- 4) Screw compressor according to claim 3, characterised in that the mouth (11) is arranged close to the outlet end (8) of the screw compressor (1), so that the

distance from the mouth (11) to the end of the thread (4) is 20 % at most of the length of the screw (3).

- 5 5) Screw compressor (1) according to claim 3, characterised in that the mouth (11) is arranged close to the outlet end (8) of the screw compressor, so that the distance from the mouth (11) to the end of the thread (4) is 10 % at most of the length of the screw (3).
- 10 6) Screw compressor according to claim 1, characterised in that the casing (5) of the screw compressor (1) is, at least over a part of its length, a water-tight casing that is impervious to liquid or essentially impervious to liquid.
- 15 7) Screw compressor according to claim 1, characterised in that the screw (3) and the inner side of the casing (5) are conically tapered in direction towards the outlet end (8) of the screw compressor (1).
- 8) Method for compressing and washing matter in a screw compressor (1), which method comprises the following steps:
- 20 a) providing a screw compressor (1) comprising a screw (3) having an outer threading (4), the pitch of which decreases in the longitudinal direction of the screw (3), a casing (5) that encases the screw (3), which casing has an inner side (6) that faces the thread (4) on the screw (3) so that matter can be fed forward through the screw compressor (1) between the screw (3) and the inner side of the casing (5) in a direction from an inlet end (7) of the screw compressor where the pitch of the screw (3) thread (4) is greater to an outlet end (8) of the screw compressor (1) where the pitch of the screw (3) thread (4) is smaller,
- 25 b) supplying of wet matter to the inlet end (7) of the screw compressor,
- c) operating the screw (3) so that the wet matter that is supplied to the inlet end (7) of the screw compressor is fed forward through the screw compressor (1) in
- 30 d) directing the wet matter so that the wet matter (2) is prevented from rotating along with the screw (3) and instead moves essentially straight through the screw compressor,
- e) separating liquid from the wet matter by the compressing in the screw
- 35 compressor (1), until the wet matter has reached a dry content of at least 35 %,

- 5 f) supplying a washing agent to the dewatered matter, whereby the washing agent is supplied to the dewatered matter via the rotating screw so that the washing agent is uniformly supplied to the dewatered matter,
- g) additional compressing of the dewatered matter, after the supply of the washing agent, characterised in that
- h) the washing agent that is supplied to the wet matter is pressed axially backwards through the screw compressor (1) in direction towards the inlet end (7) of the screw compressor (1).
- 10 9) Method according to claim 8, characterised in that the wet matter is compressed by a degree of compression that is constant from the inlet end of the screw compressor (1) to its outlet end (8).
- 15 10) Method according to any one of claims 8 or 9, characterised in that the wet matter is dewatered until it reaches a dry content of at least 40 % before the washing agent is supplied to it.
- 20 11) Method according to claim 10, characterised in that the wet matter is dewatered until it reaches a dry content of at least 45 % before the washing agent is supplied to it.
- 25 12) Method according to claim 8, characterised in that the washing agent is supplied during undiminished compression of the wet matter (2) so that the washing agent is exposed to a back pressure.
- 30 13) Method according to claim 12, characterised in that the degree of compression is constant all the way from the inlet end (7) of the screw compressor (1) to its outlet end (8).